

Claims

1.           A body dryer including:  
          a housing defining an air chamber;  
5           a narrow elongate outlet aperture in the housing;  
          heating means for heating air in the housing; and  
          an air blower for supplying air into the housing  
for heating by the heating means and for discharge through  
the narrow elongate air outlet aperture so as to form a  
10          blade of hot air flowing outwardly of the housing for  
wrapping around a person standing in proximity to the  
housing to dry the person.
2.           The body dryer of claim 1 wherein the housing is  
15          an elongate housing having a longitudinal axis which is  
intended to be arranged substantially vertical when the  
dryer is installed for use, the housing having a length in  
the direction of the longitudinal axis of between 1000 mm  
and 2000 mm.
- 20          3.           The body dryer of claim 2 wherein the length of  
the housing is about 1500 mm.
- 25          4.           The body dryer of claim 1 wherein the air outlet  
aperture comprises a segmented slit extending in the  
direction of the longitudinal axis of the housing.
- 30          5.           The body dryer of claim 1 wherein the heating  
means comprises at least one coiled heating element  
arranged substantially parallel to the outlet aperture and  
supported in the housing so that the outlet aperture is  
spaced from the heating element.
- 35          6.           The body dryer of claim 5 wherein two coiled  
heating elements are provided, the coiled heating elements  
being arranged one behind the other relative to the outlet  
aperture.

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7. The body dryer of claim 1 wherein the air blower comprises a fan, the housing having an air inlet at a lower portion of the housing, and the fan being disposed adjacent the air inlet for drawing air into the housing, which air can flow over the heating elements and then, due to pressurisation within the housing, exit the outlet aperture in the form of a narrow blade of air which draws a buttressing layer of cooler air, so that the buttressing layer of cooler air supports the central blade of hot air as the central blade of hot air flows away from the housing.

8. The body dryer of claim 1 wherein the dryer includes air flow control means for converting a vortex flow of air created by the fan into a substantially laminar flow of air.

9. The body dryer of claim 8 wherein the air flow control means comprises a pair of wings arranged downstream of the fan, each wing in the pair of wings being curved in a direction generally opposite to one another so that the vortex air flow created by the fan impinges on the wings and is straightened by the wings into a substantially laminar flow of air, which then flows through housing and over the heating means and out through the outlet aperture.

10. The body dryer of claim 6 wherein each heating element comprises a said coil of wire supported on a central insulating strip.

11. The body dryer of claim 10 wherein the heating element includes a plurality of support means arranged along the length of the coiled heating element, for supporting the coiled heating element to prevent the coiled heating element coils from simply collapsing or compacting when the housing is arranged in a vertical

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disposition for use.

12. The body dryer of claim 7 wherein the fan is arranged within an outer fan housing, an inner fan housing  
5 containing a motor for rotating the fan located in the outer housing and spaced from the outer housing, the wings extending from the inner housing to the outer housing, an opening in the inner housing so that air can pass through the opening, a secondary fan within the inner housing for  
10 drawing air into the inner housing through the opening to flow over the motor to cool the motor, and an outlet for returning the air from the inner housing to the exterior of the inner housing.

13. The body dryer of claim 11 wherein each support means for supporting the coiled element comprises a first  
15 card portion having a profiled edge, a second card portion having a profiled edge, so that when the first card portion and second card portion are brought together, the profiled edges define apertures through which both the  
20 coil and the central support strip can extend, and with the card portions adjacent the apertures forming support surfaces for holding the coiled element to prevent the coiled element from collapsing vertically under its own  
25 weight when the body dryer is installed in a vertical position for use.

14. The body dryer of claim 13 wherein the card portions, and therefore the coiled heating element, is  
30 supported in a support frame fixed in the housing.

15. The body dryer of claim 14 wherein the support frame comprises a generally U-shaped section in which the card portions and heating element are received, and a lid  
35 section for coupling to the U-shaped section and for holding the card portions, and therefore the heating elements within the frame.

16. The body dryer of claim 1 wherein the dryer includes a control panel section, the control panel section comprising at least one light conductor, a  
5 interface at one end of the light conductor, against which the user's fingers can locate, so as to change the nature of light reflected from the interface back to the light conductor to thereby provide a control signal for operating the dryer.
- 10 17. A body dryer including:  
a housing;  
heating means in the housing for heating air in the housing;  
15 an outlet aperture for discharge of air from the housing; and  
a fan assembly for supplying air to the housing, including:  
(a) a fan;  
20 (b) a motor for driving the fan; and  
(c) at least one pair of air flow control wings downstream of the fan for converting vortex or rotating flow of air created by the fan into a laminar flow of air.
- 25 18. The body dryer of claim 17 wherein the heating means comprises at least one coiled heating element arranged substantially parallel to the outlet aperture and supported in the housing so that the outlet aperture is  
30 spaced from the heating element.
19. The body dryer of claim 18 wherein two coiled heating elements are provided, the coiled heating elements being arranged one behind the other relative to the outlet  
35 aperture.
20. The body dryer of claim 17 wherein the housing

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has an air inlet at a lower portion of the housing, and the fan being disposed adjacent the air inlet for drawing air into the housing, which air can flow over the heating elements and then, due to pressurisation within the housing, exit the outlet aperture in the form of a narrow blade of air which draws a buttressing layer of cooler air, so that the buttressing layer of cooler air supports the central blade of hot air as the central blade of hot air flows away from the housing.

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21. The body dryer of claim 17 wherein the fan is arranged within an outer fan housing, an inner fan housing containing a motor for rotating the fan, the wings extending from the inner housing to the outer housing, an opening in the inner housing so that air can pass through the opening, a secondary fan within the inner housing for drawing air into the inner housing to flow over the motor to cool the motor, and an outlet for returning the air from the inner housing to the exterior of the inner housing.

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22. A body dryer including:

a dryer housing;

heating means in the housing for heating air in the housing;

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an outlet aperture for discharge of air from the housing; and

a fan assembly for supplying air to the dryer housing, including:

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(a) a primary fan;

(b) an outer fan housing;

(c) an inner fan housing for defining an air chamber with the outer fan housing through which the primary fan can blow air;

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(d) a fan motor arranged in the inner fan housing for driving the primary fan;

(e) a secondary fan in the inner fan housing;

and

(f) an opening in the inner housing so that air can flow from the chamber through the opening and into the inner housing under the influence of the second fan to cause an air flow over the motor for cooling the motor.

23. The body dryer of claim 22 wherein the dryer housing has an air inlet at a lower portion of the dryer housing, and the fan being disposed adjacent the air inlet for drawing air into the housing, which air can flow over the heating elements and then, due to pressurisation within the housing, exit the outlet aperture in the form of a narrow blade of air which draws the buttressing layer of cooler air, so that the buttressing layer of cooler air supports the central blade of hot air as the central blade of hot air flows away from the dryer housing.

24. The body dryer of claim 22 wherein the dryer includes air flow control means for converting a vortex flow of air created by the fan into a substantially laminar flow of air.

25. The body dryer of claim 24 wherein the air flow control means comprises a pair of wings arranged downstream of the fan, each wing in the pair of wings being curved in a direction generally opposite to one another so that the vortex air flow created by the fan impinges on the wings and is straightened by the wings into a substantially laminar flow of air, which then flows into the dryer housing and over the heating means.

26. The body dryer of claim 22 wherein each heating element comprises a said coil of wire supported on a central insulating strip.

27. The body dryer of claim 26 wherein the heating

element includes a plurality of support means arranged along the length of the coiled heating element, for supporting the coils of the coiled heating element to prevent the heating element coils from simply collapsing when the dryer housing is arranged in a vertical disposition for use.

28. A body dryer, including:  
an elongate housing defining an air chamber, the elongate housing being intended to be mounted so that the longitudinal axis of the housing is arranged substantially vertically;  
an elongate narrow outlet opening extending substantially the entire length of the housing;  
a heating element in the housing and extending substantially parallel to the outlet aperture for substantially the entire length of the outlet aperture; and  
means for pressurising the housing with air so that the air flows over the housing element and out through the outlet aperture.

29. The body dryer of claim 28 wherein the means for pressurising the housing comprises a fan mounted in a lower portion of the housing, the housing having an air inlet adjacent the fan.

30. The body dryer of claim 29 wherein the length of the housing is about 1500 mm.

31. The body dryer of claim 28 wherein the air outlet aperture comprises a segmented slit extending in the direction of the longitudinal axis of the housing.

32. The body dryer of claim 28 wherein the heating element comprises at least one coiled heating element arranged substantially parallel to the outlet aperture and

supported in the housing so that the outlet aperture is spaced from the heating element.

33. The body dryer of claim 32 wherein two coiled heating elements are provided, the coiled heating elements being arranged one behind the other relative to the outlet aperture.

34. The body dryer of claim 28 wherein the dryer includes air flow control means for converting a vortex flow of air created by the fan into a substantially laminar flow of air.

35. The body dryer of claim 34 wherein the air flow control means comprises a pair of wings arranged downstream of the fan, each wing in the pair of wings being curved in a direction generally opposite to one another so that the vortex air flow created by the fan impinges on the wings and is straightened by the wings into a substantially laminar flow of air, which then flows through housing and over the heating means and out through the outlet aperture.

36. The body dryer of claim 32 wherein each heating element comprises a said coil of wire supported on a central insulating strip.

37. The body dryer of claim 36 wherein the heating element includes a plurality of support means arranged along the length of the coiled heating element, for supporting the coiled heating element to prevent the coiled heating element coils from simply collapsing or compacting when the housing is arranged in a vertical disposition for use.

38. The body dryer of claim 29 wherein the fan is arranged within an outer fan housing, an inner fan housing



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containing a motor for rotating the fan located in the outer housing and spaced from the outer housing, the wings extending from the inner housing to the outer housing, an opening in the inner housing so that air can pass through the opening, a secondary fan within the inner housing for drawing air into the inner housing through the opening to flow over the motor to cool the motor, and an outlet for returning the air from the inner housing to the exterior of the inner housing.

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39. The body dryer of claim 37 wherein each support means for supporting the coiled element comprises a first card portion having a profiled edge, a second card portion having a profiled edge, so that when the first card portion and second card portion are brought together, the profiled edges define apertures through which both the coil and the central support strip can extend, and with the card portions adjacent the apertures forming support surfaces for holding the coiled element to prevent the coiled element from collapsing vertically under its own weight when the body dryer is installed in a vertical position for use.

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40. The body dryer of claim 39 wherein the card portions, and therefore the coiled heating element, is supported in a support frame fixed in the housing.

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41. The body dryer of claim 40 wherein the support frame comprises a generally U-shaped section in which the card portions and heating element are received, and a lid section for coupling to the U-shaped section and for holding the card portions, and therefore the heating elements within the frame.

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42. The body dryer of claim 28 wherein the dryer includes a control panel section, the control panel section comprising at least one light conductor, a

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interface at one end of the light conductor, against which the user's fingers can locate, so as to change the nature of light reflected from the interface back to the light conductor to thereby provide a control signal for  
5 operating the dryer.

43. A body dryer including:

a housing defining an air chamber;  
an outlet aperture in the housing;  
10 an air blower for supplying air into the housing for discharge through the outlet aperture; and

a heating element supported in the housing for heating the air in the housing prior to discharge of the air through the outlet aperture, the heating element  
15 having:

- (a) at least one coiled wire supported on a central strip;
- (b) a first card having a profiled edge defining part of a first slot and part of a  
20 second slot, and an edge section defining one edge of a transverse slot located between the first and second slots;
- (c) a second card having a profiled edge defining second portions of the first and second  
25 slots, and a second edge of the transverse slot;
- (d) the coiled wire of the heating element and the strip being supported by the first and second cards when the cards are brought into side by side relationship, so that the coiled wire passes  
30 through at least one of the first and second slots, and the strip passes through the transverse slot.

44. The body dryer of claim 43 wherein a plurality of  
35 said first and second cards are arranged along the length of the coiled heating element to support the coiled heating element.

45. The body dryer of claim 43 wherein two coiled heating elements are supported by each first card and second card in substantially parallel relationship with respect to one another, and wherein the first card has a second profiled edge defining part of a first slot and part of a second slot, and an edge section defining one edge of a transverse slot located between the first and second slots, the second card having a second profiled edge defining second portions of the first and second slots and a second edge of the transverse slot, and wherein one of said two coiled wires passes through one of the first and second slots and the respective strip passes through the transverse slot of the profiled edge defined by the first and second cards, and the other of the coiled wires passes through the first and second slots, and the respective strip passes through the transverse slot of the second profiled edges defined by the first and second cards.

46. The body dryer of claim 43 wherein the first and second cards are supported by a frame.

47. The body dryer of claim 46 wherein the frame includes a first U-shaped frame section having opposed first and second walls and a base wall joining the first and second walls, and the first card has first and second tabs for engaging in apertures in the first and second walls, and a third tab for engaging in the base wall.

48. The body dryer of claim 47 wherein the frame is completed by a cover and the second card has a tab which engages in an aperture in the cover, and tab which engages in the apertures of the first and second walls of the U-shaped frame.

49. The body dryer of claim 45 wherein at least one

of the first and second cards includes a prong on the edge which defines the transverse slot, and the strip includes an opening for receiving the prong for securing the strip and therefore the coiled heating element to the said one  
5 of the cards.

50. The body dryer of claim 43 wherein the air blower comprises a fan, the housing having an air inlet at a lower portion of the housing, and the fan being disposed  
10 adjacent the air inlet for drawing air into the housing, which air can flow over the heating elements and then, due to pressurisation within the housing, exit the outlet aperture in the form of a narrow blade of air which draws a buttressing layer of cooler air, so that the buttressing  
15 layer of cooler air supports the central blade of hot air as the central blade of hot air flows away from the housing.

51. The body dryer of claim 43 wherein the dryer  
20 includes air flow control means for converting a vortex flow of air created by the fan into a substantially laminar flow of air.

52. The body dryer of claim 51 wherein the air flow  
25 control means comprises a pair of wings arranged downstream of the fan, each wing in the pair of wings being curved in a direction generally opposite to one another so that the vortex air flow created by the fan impinges on the wings and is straightened by the wings  
30 into a substantially laminar flow of air, which then flows through housing and over the heating means and out through the outlet aperture.

53. The body dryer of claim 52 wherein the fan is  
35 arranged within an outer fan housing, an inner fan housing containing a motor for rotating the fan located in the outer housing and spaced from the outer housing, the wings

extending from the inner housing to the outer housing, an opening in the inner housing so that air can pass through the opening, a secondary fan within the inner housing for drawing air into the inner housing through the opening to  
5 flow over the motor to cool the motor, and an outlet for returning the air from the inner housing to the exterior of the inner housing.

54. A method of forming a heating element including  
10 the steps of:

providing a coiled heating element having a coiled wire and a strip located in the coiled wire for supporting the coiled wire;

providing a first card having a profiled edge  
15 defining part of a first slot and part of a second slot, and an edge section defining one edge of a transverse slot located between the first and second slots;

locating the first card in a support member;  
locating the coiled wire and the strip relative  
20 to the first card so that the coiled wire winds through one of the part of the first slot and the part of the second slot, and the substrate is adjacent the edge defining the transverse slot;

locating a second card having a profiled edge  
25 defining second portions of the first and second slots, and a second edge of the transverse slot, so that the part of the first and second slots of the second card register over the coiled wire so the coiled wire coils through one of the first and second slots defined by the first and  
30 second cards when the first and second cards are brought together, and the strip is located in the slot defined between the transverse edge portion of the first card and the transverse edge portion of the second card.

35 55. The method of claim 54 wherein the method includes the step of securing the second card to the support member by a cover member which attaches to the

support member.

56. The method of claim 55 wherein the support member comprises a generally U-shaped channel frame member.

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57. A body dryer including:

a housing defining an air chamber;

an outlet aperture in the housing;

heating means for heating air in the housing;

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an air blower for supplying air into the housing for heating by the heating means and for discharge through the outlet aperture;

a light transmitting conductor having a first end forming an on/off control and a second end arranged

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adjacent a light source for launching light into the light conductor;

a detector at the second end of the light conductor for detecting light reflected from the first end for providing a control signal; and

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wherein when a user locates his or her finger on the first end, the nature of light reflected from the first end back to the second end alters, to thereby change the control signal for turning on or off the dryer.

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58. The body dryer of claim 57 wherein the light conductor has a first branch along which light travels to the first end from the light source, and a second branch along which light travels after reflection from the first end to the detector.

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59. The body dryer of claim 58 wherein the light conductor has a third branch extending between the first and second ends, and a light source at the second end of the third branch which is activated upon operation of the heater so light travels along the third branch to the first end to provide a visual indication of the operation of the dryer.

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60. A fan assembly including:  
a fan;  
a motor for driving the fan; and  
at least one pair of air flow control wings  
5 downstream of the fan for converting vortex or rotating  
flow of air created by the fan into a laminar flow of air.

61. The assembly of claim 60 wherein the fan is  
arranged within an outer fan housing, an inner fan housing  
10 containing a motor for rotating the fan, the wings  
extending from the inner housing to the outer housing, an  
opening in the inner housing so that air can pass through  
the opening, a secondary fan within the inner housing for  
drawing air into the inner housing to flow over the motor  
15 to cool the motor, and an outlet for returning the air  
from the inner housing to the exterior of the inner  
housing.

62. A fan assembly including:  
20 a primary fan;  
an outer fan housing;  
an inner fan housing for defining an air chamber  
with the outer fan housing through which the primary fan  
can blow air;  
25 a fan motor arranged in the inner fan housing for  
driving the primary fan;  
a secondary fan in the inner fan housing; and  
an opening in the inner housing so that air can  
flow from the chamber through the opening and into the  
30 inner housing under the influence of the second fan to  
cause an air flow over the motor for cooling the motor.

63. The assembly of claim 62 including air flow  
control means for converting a vortex flow of air created  
35 by the fan into a substantially laminar flow of air.

64. The assembly of claim 63 wherein the air flow

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control means comprises a pair of wings arranged downstream of the fan, each wing in the pair of wings being curved in a direction generally opposite to one another so that the vortex air flow created by the fan impinges on the wings and is straightened by the wings into a substantially laminar flow of air, which then flows into the dryer housing and over the heating means.

65. A heating element including:  
at least one coiled wire supported on a central strip;  
a first card having a profiled edge defining part of a first slot and part of a second slot, and an edge section defining one edge of a transverse slot located between the first and second slots;  
a second card having a profiled edge defining second portions of the first and second slots, and a second edge of the transverse slot;  
the coiled wire of the heating element and the strip being supported by the first and second cards when the cards are brought into side by side relationship, so that the coiled wire passes through at least one of the first and second slots, and the strip passes through the transverse slot.

66. The heating element of claim 65 wherein a plurality of said first and second cards are arranged along the length of the coiled heating element to support the coiled heating element.

67. The heating element of claim 65 wherein two coiled heating elements are supported by each first card and second card in substantially parallel relationship with respect to one another, and wherein the first card has a second profiled edge defining part of a first slot and part of a second slot, and an edge section defining one edge of a transverse slot located between the first



and second slots, the second card having a second profiled edge defining second portions of the first and second slots and a second edge of the transverse slot, and wherein one of said two coiled wires passes through one of the first and second slots and the respective strip passes through the transverse slot of the profiled edge defined by the first and second cards, and the other of the coiled wires passes through the first and second slots, and the respective strip passes through the transverse slot of the second profiled edges defined by the first and second cards.

68. The heating element of claim 65 wherein the first and second cards are supported by a frame.

69. The heating element of claim 68 wherein the frame includes a first U-shaped frame section having opposed first and second walls and a base wall joining the first and second walls, and the first card has first and second tabs for engaging in apertures in the first and second walls, and a third tab for engaging in the base wall.

70. The heating element of claim 69 wherein the frame is completed by a cover and the second card has a tab which engages in an aperture in the cover, and tab which engages in the apertures of the first and second walls of the U-shaped frame.

71. The heating element of claim 67 wherein at least one of the first and second cards includes a prong on the edge which defines the transverse slot, and the strip includes an opening for receiving the prong for securing the strip and therefore the coiled heating element to the said one of the cards.